

What is claimed is:

1     1.     A method comprising:  
2             acquiring information about interfering base stations in a vicinity of a base  
3     station of interest (BSOI); and  
4             choosing one of said interfering base stations as a master base station for  
5     said BSOI, wherein a master base station is a base station to which another base  
6     station is to synchronize.

1     2.     The method of claim 1, wherein choosing one of said interfering base  
2     stations as a master base station includes:  
3             when said interfering base stations are from multiple sync groups, selecting a  
4     sync group from said multiple sync groups to be a master sync group, wherein a  
5     sync group is a group of base stations that are currently synchronized with one  
6     another;  
7             when said interfering base stations are all from a common sync group,  
8     identifying said common sync group as said master sync group; and  
9             when said master sync group includes at least one master base station that is  
10    also one of said interfering base stations and that has a received signal strength  
11    within said BSOI that is adequate to perform accurate synchronization, assigning  
12    one of said at least one master base station as a master base station of said BSOI.

1     3.     The method of claim 2, further comprising:  
2             delivering an ID of said assigned master base station and a corresponding  
3     ranging rule to said BSOI.

1     4.     The method of claim 2, wherein choosing one of said interfering base  
2     stations as a master base station further includes:  
3             when said master sync group does not include a master base station that is  
4     also one of said interfering base stations and that has a received signal strength  
5     within said BSOI that is adequate to perform accurate synchronization, selecting a  
6     base station from said master sync group that is one of said interfering base stations  
7     as the master base station of said BSOI; and  
8             creating a new ranging rule for said selected master base station.

1 5. The method of claim 4, further comprising:  
2 delivering an ID of said selected master base station and said new ranging  
3 rule to said BSOI and said selected master base station.

1 6. The method of claim 2, further comprising:  
2 when said interfering base stations are from multiple sync groups and one of  
3 said multiple sync groups has been selected as said master sync group, giving said  
4 BSOI master status over sync groups in said multiple sync groups other than said  
5 master sync group.

1 7. The method of claim 6, further comprising:  
2 identifying synchronization chains for said sync groups in said multiple  
3 sync groups other than said master sync group, wherein each synchronization chain  
4 originates at said BSOI; and  
5 creating a new ranging rule for each master/slave level within each  
6 synchronization chain.

1 8. The method of claim 1, wherein:  
2 acquiring information includes receiving said information from said BSOI,  
3 wherein said information is accompanied by a request to assign a master base  
4 station to said BSOI.

1 9. A base station controller (BSC) comprising:  
2 a receiver to receive a list of interfering base stations associated with a base  
3 station of interest (BSOI); and  
4 a controller to select a master base station for said BSOI from said list of  
5 interfering base stations, wherein a master base station is a base station to which  
6 another base station is to synchronize.

1 10. The BSC of claim 9, further comprising:  
2 a sync group database to store data related to base station sync groups in an  
3 associated wireless network, each sync group including one or more base stations in

4 said wireless network that are currently synchronized to one another, wherein said  
5 controller is in communication with said sync group database.

1 11. The BSC of claim 10, wherein said controller is to:  
2 when said base stations in said list of interfering base stations are from  
3 multiple sync groups, select a master sync group from said multiple sync groups;  
4 when said base stations in said list of interfering base stations are from a  
5 common sync group, identify said common sync group as said master sync group;  
6 and  
7 select a base station from said list of interfering base stations, that is within  
8 said master sync group, for use as a master base station for said BSOI.

1 12. The BSC of claim 11, wherein:  
2 operation to select a base station from said list includes operation to:  
3 when said master sync group includes at least one master base  
4 station that is also one of said interfering base stations and that has a  
5 received signal strength in said BSOI that is adequate to perform accurate  
6 synchronization, assign one of said at least one master base stations as a  
7 master base station of said BSOI.

1 13. The BSC of claim 12, wherein:  
2 operation to select a base station from said list includes operation to:  
3 when said master sync group does not include a master base station  
4 that is also one of said interfering base stations and that has a receive signal  
5 strength within said BSOI that is adequate to perform accurate  
6 synchronization, select a base station from said master sync group that is  
7 one of said interfering base stations as the master base station of said BSOI.

1 14. The BSC of claim 13, wherein:  
2 operation to select a base station from said list includes operation to:  
3 when said master sync group does not include a master base station  
4 that is also one of said interfering base stations, create a new ranging rule for  
5 said selected master base station.

1 15. The BSC of claim 11, wherein said controller is configured to:  
2 when said base stations in said list of interfering base stations are from  
3 multiple sync groups and one of said sync groups has been selected as a master sync  
4 group:  
5 give said BSOI master base station status over sync groups in said  
6 multiple sync groups other than said master sync group;  
7 identify synchronization chains for said sync groups in said multiple  
8 sync groups other than said master sync group, wherein each  
9 synchronization chain originates at said BSOI; and  
10 create a new ranging rule for each master/slave level within each  
11 synchronization chain.

1 16. The BSC of claim 9, further comprising:  
2 a transmitter to transmit a master base station ID and a corresponding  
3 ranging rule to said BSOI.

1 17. A method comprising:  
2 acquiring an ID of a master base station and a corresponding ranging rule;  
3 initially synchronizing to said master base station while in a subscriber  
4 station mode of operation; and  
5 periodically listening for a ranging code from said master base station while  
6 in a base station mode of operation, after initially synchronizing, for use in  
7 refreshing synchronization with said master base station.

1 18. The method of claim 17, wherein periodically listening includes:  
2 determining whether a frame number specified by said ranging rule has been  
3 reached;  
4 allocating a ranging time slot in a current frame when said frame number has  
5 been reached; and  
6 monitoring said allocated ranging time slot for said ranging code.

1 19. The method of claim 17, further comprising:

2       estimating frequency and time offsets using said ranging code when a  
3 ranging code is detected; and  
4       adjusting a clock using said frequency and time offsets.

1   20.   An apparatus comprising:  
2       a wireless transceiver; and  
3       a controller to achieve and maintain synchronization between said apparatus  
4 and interfering base stations in a wireless network, said controller to:  
5       determine the identity of a master base station within said wireless  
6 network to which said apparatus is to synchronize;  
7       establish initial synchronization with said master base station while  
8 in a subscriber station mode of operation; and  
9       periodically look for a ranging code transmitted by said master base  
10 station for use in refreshing synchronization with said master base station  
11 after initial synchronization has been established.

1   21.   The apparatus of claim 20, wherein:  
2       said controller is to periodically look for said ranging code while in a base  
3 station mode of operation.

1   22.   The apparatus of claim 20, wherein:  
2       said controller is to acquire information describing a ranging rule associated  
3 with said master base station, wherein said controller is to look for said ranging  
4 code at times specified by said ranging rule.

1   23.   The apparatus of claim 20, wherein:  
2       said controller is to estimate frequency and time offsets using said ranging  
3 code, when a ranging code has been detected, and use said frequency and time  
4 offsets to correct a clock of said apparatus.

1   24.   The apparatus of claim 20, wherein:  
2       said controller is to: collect information on interfering base stations in an  
3 environment about said apparatus and deliver said collected information, along with

4 a request for assignment of a master base station, to a remote network controller  
5 when said apparatus is to join said wireless network.

1 25. A base station comprising:  
2 at least one dipole antenna;  
3 a wireless transceiver in communication with said at least one dipole  
4 antenna; and  
5 a controller to achieve and maintain synchronization between said base  
6 station and interfering base stations in a wireless network, said controller to:  
7 determine the identity of a master base station within said wireless  
8 network to which said base station is to synchronize;  
9 establish initial synchronization with said master base station while  
10 in a subscriber station mode of operation; and  
11 periodically look for a ranging code transmitted by said master base  
12 station for use in refreshing synchronization with said master base station  
13 after initial synchronization has been established.

1 26. The base station of claim 25, wherein:  
2 said controller is to periodically look for said ranging code while in a base  
3 station mode of operation.

1 27. The base station of claim 25, wherein:  
2 said controller is to acquire information describing a ranging rule associated  
3 with said master base station, wherein said controller is to look for said ranging  
4 code at times specified by said ranging rule.

1 28. An article comprising a storage medium having instructions stored thereon  
2 that, when executed by a computing platform, operate to:  
3 acquire information about interfering base stations in a vicinity of a base  
4 station of interest (BSOI); and  
5 choose one of said interfering base stations as a master base station for said  
6 BSOI, wherein a master base station is a base station to which another base station  
7 is to synchronize.

1     29.     The article of claim 28, wherein:  
2             operation to choose one of said interfering base stations as a master base  
3     station includes operation to:  
4             when said interfering base stations are from multiple sync groups,  
5             select a sync group from said multiple sync groups to be a master sync  
6             group, wherein a sync group is a group of base stations that are currently  
7             synchronized with one another;  
8             when said interfering base stations are all from a common sync  
9             group, identify said common sync group as said master sync group; and  
10            when said master sync group includes at least one master base  
11            station that is also one of said interfering base stations and that has a  
12            received signal strength within said BSOI that is adequate to perform  
13            accurate synchronization, assign one of said at least one master base stations  
14            as a master base station of said BSOI.

1     30.     The article of claim 29, wherein:  
2             operation to choose one of said interfering base stations as a master base  
3     station further includes operation to:  
4             when said master sync group does not include a master base station  
5             that is also one of said interfering base stations and that has a received signal  
6             strength within said BSOI that is adequate to perform accurate  
7             synchronization, select a base station from said master sync group that is  
8             one of said interfering base stations as the master base station of said BSOI;  
9             and  
10            create a new ranging rule for said selected master base station.